

1 WHAT IS CLAIMED IS:

- 2 1. A base oil composition suitable for use in an engine oil which comprises  
3 a mixture of trimer and higher oligomers derived from an alpha olefin  
4 feed consisting essentially of either 1-dodecene or 1-tetradecene  
5 wherein said oligomer mixture contains less than 2 weight percent of  
6 combined monomer and dimer.
- 7 2. A base oil according to claim 1 wherein the base oil composition  
8 consists essentially of only the trimer and higher oligomers of either 1-  
9 dodecene or 1-tetradecene.
- 10 3. The base oil composition of claim 2 wherein the trimer and higher  
11 oligomers are derived from 1-dodecene.
- 12 4. An engine oil comprising between 50% and 85% by weight of the base  
13 oil of claim 1.
- 14 5. The engine oil of claim 4 further including from 0 to about 20 weight  
15 percent of at least one ashless dispersant, from 0 to about 30 weight  
16 percent of detergent, from 0 to about 5 weight percent of at least one  
17 anti-wear agent, from 0 to about 10 weight percent of at least one  
18 oxidation inhibitor, from 0 to about 1 weight percent of at least one foam  
19 inhibitor, and from 0 to about 20 weight percent of at least one viscosity  
20 improver.
- 21 6. An engine oil according to claim 5 having an SAE viscosity grade of  
22 0W-20-40 comprising from 15 to 85% by weight of the base oil which is  
23 comprised of from 50 to 85% by weight of PAO, wherein at least 15% by  
24 weight of said PAO is derived from 1-dodecene or 1-tetradecene.
- 25 7. An engine oil according to claim 5 having an SAE viscosity grade of  
26 5W-20-50 comprising from 15 to 85% by weight of the base oil which is

1 comprised of from 15 to 50% by weight of PAO, wherein at least 15% by  
2 weight of said PAO is derived from 1-dodecene or 1-tetradecene.

3 8. An engine oil according to claim 5 having an SAE viscosity grade of  
4 10W-20-50 comprising from 15 to 85% by weight of the base oil which is  
5 comprised of from 5 to 35% by weight of PAO, wherein at least 15% by  
6 weight of said PAO is derived from 1-dodecene or 1-tetradecene.

7 9. A method for improving the thermal stability, oxidative stability, and  
8 volatility characteristics of engine oil which comprises using a base oil  
9 comprised of PAO derived from a linear alpha olefin feed consisting  
10 essentially of 1-dodecene or 1-tetradecene.

11 10. The method of claim 9 wherein the PAO has a viscosity at 100°C of  
12 between about 3.5 to about 9.5 centistokes.

13 11. The method of claim 10 wherein the PAO has an approximate viscosity  
14 at 100°C of 5 centistokes.

15 12. The method of claim 10 wherein the PAO has an approximate viscosity  
16 at 100°C of 7 centistokes.

17 13. An engine oil able to pass the VW T-4, VW TDI, or Sequence IIIE tests  
18 which comprises from about 5 to about 85 weight percent of a base oil,  
19 from 0 to about 20 weight percent of at least one ashless dispersant,  
20 from 0 to about 30 weight percent of detergent, from 0 to about 10  
21 weight percent of at least one oxidation inhibitor, from 0 to about 1  
22 weight percent of at least one foam inhibitor, and from 0 to about 20  
23 weight percent of at least one viscosity improver, wherein the base oil  
24 comprises a mixture of trimer and higher oligomers derived from an  
25 alpha olefin feed consisting essentially of either 1-dodecene or 1-  
26 tetradecene and wherein said oligomer mixture contains less than 2  
27 weight percent of combined monomer and trimer.

- | Year | 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |
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| 1990 | 1991 | 1992 | 1993 | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2018 | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 | 2029 | 2030 | 2031 | 2032 | 2033 | 2034 | 2035 | 2036 | 2037 | 2038 | 2039 | 2040 | 2041 | 2042 | 2043 | 2044 | 2045 | 2046 | 2047 | 2048 | 2049 | 2050 | 2051 | 2052 | 2053 | 2054 | 2055 | 2056 | 2057 | 2058 | 2059 | 2060 | 2061 | 2062 | 2063 | 2064 | 2065 | 2066 | 2067 | 2068 | 2069 | 2070 | 2071 | 2072 | 2073 | 2074 | 2075 | 2076 | 2077 | 2078 | 2079 | 2080 | 2081 | 2082 | 2083 | 2084 | 2085 | 2086 | 2087 | 2088 | 2089 | 2090 | 2091 | 2092 | 2093 | 2094 | 2095 | 2096 | 2097 | 2098 | 2099 | 2100 |      |

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